



2312.69388

## PATENT APPLICATION

*DAC  
JFW*IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bruce McKendry  
Serial No.: 10/764,731  
Conf. No.: 8641  
Filed: 01/26/2004  
For: APPARATUS FOR EXPRESSING MILK  
Art Unit: 3767  
Examiner: Macneill, Elizabeth

I hereby certify that this paper is being deposited with the United States Postal Service as FIRST-CLASS mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this date.

*15 Aug 07* *RJB*  
Date Registration No. 29,367  
Attorney for Applicant(s)

PETITION TO REVIVE UNINTENTIONALLY  
ABANDONED APPLICATION PURSUANT TO 37 C.F.R. §1.137(b)

Mail Stop Petitions  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicants' attorney respectfully petitions for revival of the above-identified unintentionally abandoned application.

On October 17, 2006, Applicants filed in the present case (Serial No. 10/764,731) an Amendment A, together with an Amendment Transmittal and Petition for Extension of Time (copy enclosed). However, due to an inadvertent typographical error, the serial number that appears in the caption to both Amendment A and the Transmittals mistakenly reads as "09/876,891," which is actually the serial number of a related case to this application.

*08/20/2007 EMAILED 08/20/2007 10764731*  
01-FC-2453 750.00 DA  
Void dates 08/20/2007 EMAILED 08/20/2007 08/20/2007 10764731  
08/20/2007 EMAILED 08/20/2007 08/20/2007 750.00 CR  
01-FC-2453

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01-FC-2453 750.00 DA



AUG 17 2007  
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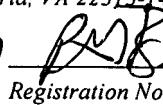
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bruce McKendry  
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15 Aug 07  
Date

  
Registration No. 29,367  
Attorney for Applicant(s)

RESPONSE TO AUGUST 8, 2007 DECISION ON PETITION

Mail Stop Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Decision mailed August 8, 2007, applicants enclose a copy of the Petition previously filed, signed by applicant's registered attorney, Patrick G. Burns, with all attachments previously filed with the Petition to Revive mailed on March 21, 2007.

Applicant's attorney submitted check number 45601 in the amount of \$750.00 on March 21, 2007, to cover the petition fee.

The Commissioner is hereby authorized to charge any fees which may be required or credit any overpayment, to Deposit Account No. 07-2069. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-

dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 07-2069. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By



Patrick G. Burns  
Registration No. 29,367

August 15, 2007

300 South Wacker Drive  
Suite 2500  
Chicago, Illinois 60606  
Telephone: 312.360.0080  
Facsimile: 312.360.9315

Customer No. 24978

To eliminate any further potential confusion between the two case files, applicants enclose a corrected Amendment A and Transmittals, on which the correct serial number has been inserted.

Enclosed are the following documents and fees:

- (a) A copy of Amendment A, together with an Amendment Transmittal; and
- (b) Petition fee pursuant to 37 C.F.R. § 1.17(m) to revive unintentionally abandoned application in the amount of \$750.00.

Applicants' attorney hereby states that the entire delay in filing the required reply from the due date of the reply until the filing of this Petition was unintentional, and accordingly Applicants' attorney respectfully requests revival of the above-named application.

The Commissioner is authorized to charge any additional fees, including fees related to any necessary extension of time, and to credit any refunds, to Deposit Account No. 07-2069. A duplicate of this Petition is enclosed.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By



Patrick G. Burns  
Registration No. 29,367

August 15, 2007  
300 South Wacker Drive  
Suite 2500  
Chicago, Illinois 60606  
Telephone: 312.360.0080  
Facsimile: 312.360.9315  
Customer No. 24978



12.69388

**CORRECTED**  
**COPY**  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Applicant: Bruce McKendry  
Serial No.: 10/764,731  
Conf. No.: 8641  
Filed: 01/26/2004  
For: APPARATUS FOR EXPRESSING MILK  
Art Unit: 3767  
Examiner: Macneill, Elizabeth

I hereby certify that this paper is being deposited with the United States Postal Service as FIRST-CLASS mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this date.

*21 March 07 RMB*

Date

Registration No. 29,367  
Attorney for Applicant(s)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**AMENDMENT TRANSMITTAL**

Dear Sir:

Transmitted herewith is a communication regarding the above-identified application.

**Fee Calculation For Claims As Amended**

	As Amended	Previously Paid For	Present Extra	Rate	Additional Fee
Total Claims	<u>26</u>	<u>-</u>	<u>26</u>	<u>=</u>	<u>0</u> x \$ 50.00 = <u>\$ 0</u>
Independent Claims	<u>4</u>	<u>-</u>	<u>3</u>	<u>=</u>	<u>1</u> x \$200.00 = <u>\$ 200.00</u>
Fee for Multiple Dependent Claims					<u>\$360.00</u> = <u>\$ 0</u>
Total Additional Fee					<u>\$ 0</u>
Small Entity Fee (reduced by half)					<u>\$ 100.00</u>

(X) Amendment A with a check in the amount of \$100.00 for 1 additional independent claim.

(X) Petition for Extension of Time (in duplicate) with a check in the amount of \$225.00.

(X) If a Petition under 37 C.F.R. §1.136(a) for an extension of time for response is required to make the attached response timely and does not separately accompany this transmittal, Applicant(s) hereby petition(s) under 37 C.F.R. §1.136(a) for an extension of time for response in the above-identified application for the period required to make the attached response timely.

(X) The Commissioner is hereby authorized to charge any additional fees which may be required to this application under 37 C.F.R. §§1.16-1.17, or credit any overpayment, to Deposit Account No. 07-2069. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By *PMB*

Patrick G. Burns, Reg. No. 29,367

300 South Wacker Drive – Suite 2500  
Chicago, Illinois 60606  
Tel.: (312) 360-0080  
Fax: (312) 360-9315  
Customer No.: 24978



**COPY  
CORRECTED**

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PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Bruce McKendry

Serial No.: 10/764,731

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Filed: 01/26/2004

For: APPARATUS FOR EXPRESSING MILK

Art Unit: 3767

Examiner: Macneill, Elizabeth

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21 March 07

Date

Registration No. 29,367

Attorney for Applicant(s)

**AMENDMENT A**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed June 5, 2006, please amend the above-identified application as follows:

In the Claims:

Please amend claim 9 as follows:

1. (Previously Presented) Apparatus for expressing milk from a breast comprising

a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path, and

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said liner, said liner being secured with respect to said housing to form a space with said housing which is in communication with a pulsating pressure path and a pulsating pressure source,

a vent in said pulsating pressure path providing controlled relief of pressure , and

means for increasing the area for breast extension during milk expression.

2. (Original) The apparatus of claim 1 wherein said cup assembly includes a pad located in the input end of said housing.

3. (Original) The apparatus of claim 1 wherein the pressure in the pulsating path pulsates at a rate of 41 to about 65 pulses per minute.

4. (Original) The apparatus of claim 1 wherein the vacuum in the vacuum path varies between about .5" mercury and about 5" mercury through the pulsation cycle.

5. (Canceled)

6. (Original) The apparatus of claim 1 comprising a filter between the vacuum source and the said outlet, said filter being substantially permeable to air when dry or wet, and substantially impermeable to liquid, fats and solid components in the milk.

7. (Original) The apparatus of claim 1 wherein said milk collector unit further includes a removable cap, said cup assembly being secured to said milk collector unit by both said manifold and said cap.

8. (Original) The apparatus of claim 7 wherein said vacuum path passes through said cap and said manifold to said cup assembly, and

said pulsating pressure path passes through said cap to a pressure port in said cup assembly, said pressure port being in communication with said space between said housing and said liner.

9. (Currently Amended) Apparatus for expressing milk from a breast comprising:

a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path, and

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said liner, said liner being secured with respect to said housing to form a space with said housing which is in communication with a pulsating pressure path and a pulsating pressure source,

a vent in said pulsating pressure path providing controlled relief of pressure, and

means for increasing the area for breast extension during milk expression:

The apparatus of claim 1 wherein said vacuum source and said pulsating pressure source comprise an air pump having a movable diaphragm in a chamber, a shaft operatively connected to said diaphragm and a motor which oscillates said diaphragm axially by means of said shaft, said motor being coupled to said diaphragm through threaded engagement that translates motor rotation into diaphragm oscillation.

10. (Previously Presented) Apparatus for expressing milk from a breast comprising

a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path,

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said

liner, said liner being secured with respect to said housing to form a space with said housing which is in communication with a pulsating pressure path and a pulsating pressure source, and

means for increasing the area for breast extension during milk expression,

wherein the pressure in the pulsating path pulsates at a rate of 41 to about 65 pulses per minute.

11. (Previously Presented) The apparatus of claim 1 wherein said means for increasing the area for breast extension comprises a boss.

12. (Previously Presented) The apparatus of claim 11 wherein said boss is part of said manifold.

13. (Previously Presented) The apparatus of claim 1 wherein said liner is secured with respect to said housing at said first and second ends of said liner, said first and second ends being wrapped around respective ends of said housing.

14. (Previously Presented) The apparatus of claim 1 wherein said collection vessel has an inlet adjacent said manifold, said inlet having a one-way valve.

15. (Previously Presented) The apparatus of claim 14 wherein said one-way valve is a duck bill valve.

16. (Previously Presented) The apparatus of claim 1 wherein said cup assembly is press fit in said manifold.

17. (Previously Presented) The apparatus of claim 1 wherein pulsating pressure pulses generated by the pulsating pressure source increase the vacuum at the breast.

18. (Previously Presented) The apparatus of claim 1 wherein said vacuum source produces a fairly steady vacuum at the breast without pulsation pressure, the vacuum periodically increasing when pulsation pressure pulses are applied to said liner through said space.

19. (Previously Presented) The apparatus of claim 18 wherein said boss is part of said manifold.

20. (Previously Presented) The apparatus of claim 10 wherein said liner is secured with respect to said housing at said first and second ends of said liner, said first and second ends being wrapped around respective ends of said housing.

21. (Previously Presented) The apparatus of claim 10 wherein said collection vessel has an inlet adjacent said manifold, said inlet having a one-way valve.

22. (Previously Presented) The apparatus of claim 20 wherein said one-way valve is a duck bill valve.

23. (Previously Presented) The apparatus of claim 10 wherein said cup assembly is press fit in said manifold.

24. (Previously Presented) The apparatus of claim 10 wherein the pressure pulses increase the vacuum at the breast.

25. (Previously Presented) The apparatus of claim 10 wherein said vacuum source produces a fairly steady vacuum at the breast without pulsation pressure, the vacuum periodically increasing when pulsation pressure pulses are applied to said liner through said space.

26. (Previously Presented) Apparatus for expressing milk from a breast comprising  
a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path, and

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said liner, said liner being secured with respect to said housing to form a space with said housing which is in communication with a pulsating pressure path and a pulsating pressure source,

said vacuum source producing a fairly steady vacuum at the breast in the absence of pulsation pressure, pulsating pressure pulses produced by said pulsating pressure source periodically increasing said vacuum within said liner.

27. (Previously Presented) The apparatus of claim 26 wherein said vacuum draws said liner toward the breast, and said pulsating pressure pulses expand said liner away from the breast when the vacuum within said space is increased.

## REMARKS

As a preliminary matter, claim 9, which was found to be allowable, has been rewritten in independent form. Allowance is requested.

The Office Action indicates that claims 1-10 are pending in this application, but a Preliminary Amendment was filed on January 26, 2004, amending claims 1, 9, and 10, and adding new claims 11-27. Since the pending claims were not examined, applicants request that the next action be non-final. However, in an effort to expedite prosecution, Applicant will address the cited references in view of the claims in their present form.

Independent claims 1, 10, and 26 define two air paths. One air path is a vacuum path, and the other is a pulsating pressure path. The vacuum path is operatively connected to the inside of a liner, into which the breast fits for milk expression. The pulsating pressure path communicates with the other side of the liner, in a space formed between the liner and the housing, to put pulsating pressure around the outside of the breast during milk expression.

Grant et al. '262 only applies vacuum, not pulsating pressure. Indeed, there is no liner separate from a housing in which to form a space for applying pulsating pressure. Grant et al. disclose a vent in the vacuum path, but there is no vent in a pulsating pressure path, as in amended claim 1.

Ford '246 discloses a liner in a housing, but a pulsating pressure path separate from the vacuum path is not disclosed. There is also no vent, as in amended claim 1.

Larson '403 does not disclose a liner, or a pulsating pressure path.

Whittlestone et al. '596, disclosed by Applicant, discloses a cup having a liner, a vacuum source, and a pulsating pressure source, but Whittlestone does not disclose a vent in the pulsating pressure path or the means for increasing the area for breast extension during milk expression, as in amended claim 1. Whittlestone also does not disclose the pulsating pressure rate of claim 10, or the manifold of claims 1, 10, and 26.

For the foregoing reasons Applicants submit that this case is in condition for allowance, which is respectfully requested. The examiner should call applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By   
Patrick G. Burns  
Registration No. 29,367

March 21, 2007

300 South Wacker Drive  
Suite 2500  
Chicago, Illinois 60606  
Telephone: 312.360.0080  
Facsimile: 312.360.9315

# COPY

In re Patent Application of  
Bruce McKendry  
S.N. 10/764,731

APPARATUS FOR EXPRESSING MILK

Patent Application

2312.69388

PGB:af

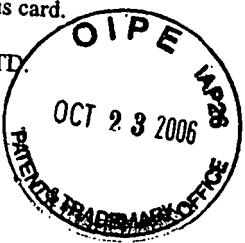
10/17/06

Enclosed is a Transmittal (in duplicate) with a check in the amount of \$100.00 for one (1) additional independent claim; Amendment A; Petition for Extension of Time (in duplicate) with a check in the amount of \$225.00; and Certificate of mailing.

Commissioner of Patents

Please acknowledge receipt of the above identified documents by applying the Patent and Trademark Office receipt hereto and mailing this card.

Respectfully,  
GREER, BURNS & CRAIN, LTD.



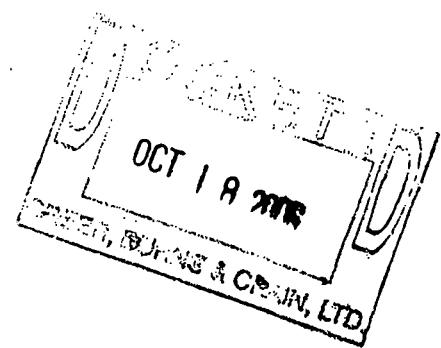
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bruce McKendry  
 Cont. of 09/876,891  
 Serial No.:  
 Conf. No.: 7561  
 Filed: June 7, 2001  
 For: APPARATUS FOR EXPRESSING MILK  
 Art Unit: 3763  
 Examiner: Roz Maiorino

I hereby certify that this paper is being deposited with the United States Postal Service in an envelope addressed to: MS Amendment Commissioner for Patents, Alexandria, VA 22313-1450, on this date.

17 Oct 06  
Date

Registration No. 29,367  
Attorney for Applicant



Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

AMENDMENT TRANSMITTAL

Dear Sir:

Transmitted herewith is a communication regarding the above-identified application.

Fee Calculation For Claims As Amended

	As Amended	Previously Paid For	Present Extra	Rate	Additional Fee
Total Claims	<u>26</u>	<u>-</u>	<u>26</u>	<u>=</u>	<u>0</u> x \$ 50.00 = <u>\$ 0</u>
Independent Claims	<u>4</u>	<u>-</u>	<u>3</u>	<u>=</u>	<u>1</u> x \$200.00 = <u>\$ 200.00</u>
Fee for Multiple Dependent Claims					<u>\$360.00</u> = <u>\$ 0</u>
Total Additional Fee					<u>\$ 0</u>
Small Entity Fee (reduced by half)					<u>\$ 100.00</u>

- (X) Amendment A with a check in the amount of \$100.00 for 1 additional independent claim.
- (X) Petition for Extension of Time (in duplicate) with a check in the amount of \$225.00.
- (X) If a Petition under 37 C.F.R. §1.136(a) for an extension of time for response is required to make the attached response timely and does not separately accompany this transmittal, Applicant(s) hereby petition(s) under 37 C.F.R. §1.136(a) for an extension of time for response in the above-identified application for the period required to make the attached response timely.
- (X) The Commissioner is hereby authorized to charge any additional fees which may be required to this application under 37 C.F.R. §§1.16-1.17, or credit any overpayment, to Deposit Account No. 07-2069. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By:

Patrick G. Burns, Reg. No. 29,367

300 South Wacker Drive – Suite 2500  
 Chicago, Illinois 60606  
 Tel.: (312) 360-0080  
 Fax: (312) 360-9315  
 Customer No.: 24978

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bruce McKendry  
 Cont. of 09/876,891  
 Serial No.:  
 Conf. No.: 7561  
 Filed: June 7, 2001  
 For: APPARATUS FOR EXPRESSING MILK  
 Art Unit: 3763  
 Examiner: Roz Maiorino

I hereby certify that this paper is being deposited with the United States Postal Service in an envelope addressed to: MS Amendment Commissioner for Patents, Alexandria, VA 22313-1450, on this date.

17 Oct 06  
Date

  
Registration No. 29,367  
Attorney for Applicant

PETITION FOR EXTENSION OF TIME

Applicant(s) hereby petition(s) under 37 C.F.R. 1.136(a) for an extension of time for response in the above-identified application for the period required to make the attached response timely.

Extension fee for response within first month:

( ) By a small entity (§1.9(f)).....	\$ 60.00
( ) By other than a small entity .....	\$ 120.00

Extension fee for response within second month:

(X) By a small entity (§1.9(f)).....	\$ 225.00
( ) By other than a small entity .....	\$ 450.00

Extension fee for response within third month:

( ) By a small entity (§1.9(f)).....	\$ 510.00
( ) By other than a small entity .....	\$ 1,020.00

Extension fee for response within fourth month:

( ) By a small entity (§1.9(f)).....	\$ 795.00
( ) By other than a small entity .....	\$1,590.00

Extension fee for response within fifth month:

( ) By a small entity (§1.9(f)).....	\$1,080.00
( ) By other than a small entity .....	\$2,160.00

(X) A check in the amount of \$225.00 is enclosed

(X) The Commissioner is hereby authorized to charge any additional fees which may be required to this petition, or credit any overpayment, to Deposit Account No. 07-2069. Should no proper amount be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 07-2069. A duplicate copy of this sheet is enclosed.

Customer No. 24978

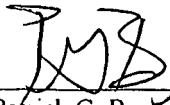
300 South Wacker Drive  
Suite 2500

Chicago, Illinois 60606

Telephone: (312) 360-0080  
Facsimile: (312) 360-9315

GREER, BURNS & CRAIN, LTD.

By

  
Patrick G. Burns, Reg. No. 29,367

# COPY

2312.69388

PATENT APPLICATION

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Bruce McKendry

Cont. of 09/876,891

Serial No.:

Conf. No.: 7561

Filed: June 7, 2001

For: APPARATUS FOR  
EXPRESSING MILK

Art Unit: 3763

Examiner: Roz Maiorino

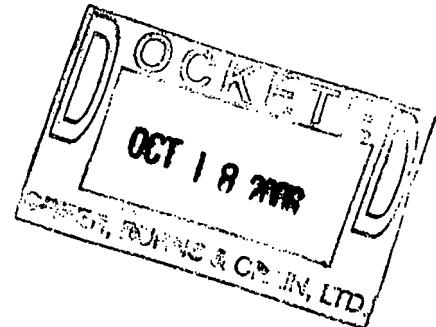
I hereby certify that this paper is being deposited with the United States Postal Service in an envelope addressed to: MS Amendment Commissioner for Patents, Alexandria, VA 22313-1450, on this date.

17 Oct 06

Date

RJZ

Registration No. 29,367  
Attorney for Applicant



## AMENDMENT A

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed June 5, 2006, please amend the above-identified application as follows:

In the Claims:

Please amend claim 9 as follows:

1. (Previously Presented) Apparatus for expressing milk from a breast comprising

a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path, and

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said liner, said liner being secured with respect to said housing to form a space with said housing which is in communication with a pulsating pressure path and a pulsating pressure source,

a vent in said pulsating pressure path providing controlled relief of pressure , and

means for increasing the area for breast extension during milk expression.

2. (Original) The apparatus of claim 1 wherein said cup assembly includes a pad located in the input end of said housing.

3. (Original) The apparatus of claim 1 wherein the pressure in the pulsating path pulsates at a rate of 41 to about 65 pulses per minute.

4. (Original) The apparatus of claim 1 wherein the vacuum in the vacuum path varies between about .5" mercury and about 5" mercury through the pulsation cycle.

5. Canceled.

6. (Original) The apparatus of claim 1 comprising a filter between the vacuum source and the said outlet, said filter being substantially permeable to air when dry or wet, and substantially impermeable to liquid, fats and solid components in the milk.

7. (Original) The apparatus of claim 1 wherein said milk collector unit further includes a removable cap, said cup assembly being secured to said milk collector unit by both said manifold and said cap.

8. (Original) The apparatus of claim 7 wherein said vacuum path passes through said cap and said manifold to said cup assembly, and

said pulsating pressure path passes through said cap to a pressure port in said cup assembly, said pressure port being in communication with said space between said housing and said liner.

9. (Currently Amended) Apparatus for expressing milk from a breast comprising:

a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path, and

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said liner, said liner being secured with respect to said housing to form a space with said housing which is in communication with a pulsating pressure path and a pulsating pressure source,

a vent in said pulsating pressure path providing controlled relief of pressure , and

means for increasing the area for breast extension during milk expression;

~~The apparatus of claim 1 wherein said vacuum source and said pulsating pressure source comprise an air pump having a movable diaphragm in a chamber, a shaft operatively connected to said diaphragm and a motor which oscillates said diaphragm axially by means of said shaft, said motor being coupled to said diaphragm through threaded engagement that translates motor rotation into diaphragm oscillation.~~

10. (Previously Presented) Apparatus for expressing milk from a breast comprising

a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path,

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said liner, said liner being secured with respect to said housing to form a space with said housing

which is in communication with a pulsating pressure path and a pulsating pressure source, and

means for increasing the area for breast extension during milk expression,

wherein the pressure in the pulsating path pulsates at a rate of 41 to about 65 pulses per minute.

11. (Previously Presented) The apparatus of claim 1 wherein said means for increasing the area for breast extension comprises a boss.

12. (Previously Presented) The apparatus of claim 11 wherein said boss is part of said manifold.

13. (Previously Presented) The apparatus of claim 1 wherein said liner is secured with respect to said housing at said first and second ends of said liner, said first and second ends being wrapped around respective ends of said housing.

14. (Previously Presented) The apparatus of claim 1 wherein said collection vessel has an inlet adjacent said manifold, said inlet having a one-way valve.

15. (Previously Presented) The apparatus of claim 14 wherein said one-way valve is a duck bill valve.

16. (Previously Presented) The apparatus of claim 1 wherein said cup assembly is press fit in said manifold.

17. (Previously Presented) The apparatus of claim 1 wherein pulsating pressure pulses generated by the pulsating pressure source increase the vacuum at the breast.

18. (Previously Presented) The apparatus of claim 1 wherein said vacuum source produces a fairly steady vacuum at the breast without pulsation pressure, the vacuum periodically increasing when pulsation pressure pulses are applied to said liner through said space.

19. (Previously Presented) The apparatus of claim 18 wherein said boss is part of said manifold.

20. (Previously Presented) The apparatus of claim 10 wherein said liner is secured with respect to said housing at said first and second ends of said liner, said first and second ends being wrapped around respective ends of said housing.

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21. (Previously Presented) The apparatus of claim 10 wherein said collection vessel has an inlet adjacent said manifold, said inlet having a one-way valve.

22. (Previously Presented) The apparatus of claim 20 wherein said one-way valve is a duck bill valve.

23. (Previously Presented) The apparatus of claim 10 wherein said cup assembly is press fit in said manifold.

24. (Previously Presented) The apparatus of claim 10 wherein the pressure pulses increase the vacuum at the breast.

25. (Previously Presented) The apparatus of claim 10 wherein said vacuum source produces a fairly steady vacuum at the breast without pulsation pressure, the vacuum periodically increasing when pulsation pressure pulses are applied to said liner through said space.

26. (Previously Presented) Apparatus for expressing milk from a breast comprising  
a milk collector unit having

a manifold, the manifold having a vacuum path, the vacuum path having an inlet, an outlet and a midsection between said inlet and said outlet, said outlet being connected to a vacuum source,

a collection vessel operatively connected to said midsection of said vacuum path, and

a cup assembly, said cup assembly having a housing with an inlet for the breast, and an outlet operatively connected to said inlet of said vacuum path in said manifold, said cup assembly also having a liner in said housing, the vacuum path passing within said liner, said liner being secured with respect to said housing to form a space with said housing which is in communication with a pulsating pressure path and a pulsating pressure source,

said vacuum source producing a fairly steady vacuum at the breast in the absence of pulsation pressure, pulsating pressure pulses produced by said pulsating pressure source periodically increasing said vacuum within said liner.

27. (Previously Presented) The apparatus of claim 26 wherein said vacuum draws said liner toward the breast, and said pulsating pressure pulses expand said liner away from the breast when the vacuum within said space is increased.

## REMARKS

As a preliminary matter, claim 9, which was found to be allowable, has been rewritten in independent form. Allowance is requested.

The Office Action indicates that claims 1-10 are pending in this application, but a Preliminary Amendment was filed on January 26, 2004, amending claims 1, 9, and 10, and adding new claims 11-27. Since the pending claims were not examined, applicants request that the next action be non-final. However, in an effort to expedite prosecution, Applicant will address the cited references in view of the claims in their present form.

Independent claims 1, 10, and 26 define two air paths. One air path is a vacuum path, and the other is a pulsating pressure path. The vacuum path is operatively connected to the inside of a liner, into which the breast fits for milk expression. The pulsating pressure path communicates with the other side of the liner, in a space formed between the liner and the housing, to put pulsating pressure around the outside of the breast during milk expression.

Grant et al. '262 only applies vacuum, not pulsating pressure. Indeed, there is no liner separate from a housing in which to form a space for applying pulsating pressure. Grant et al. disclose a vent in the vacuum path, but there is no vent in a pulsating pressure path, as in amended claim 1.

Ford '246 discloses a liner in a housing, but a pulsating pressure path separate from the vacuum path is not disclosed. There is also no vent, as in amended claim 1.

Larson '403 does not disclose a liner, or a pulsating pressure path.

Whittlestone et al. '596, disclosed by Applicant, discloses a cup having a liner, a vacuum source, and a pulsating pressure source, but Whittlestone does not disclose a vent in the pulsating pressure path or the means for increasing the area for breast extension during milk expression, as in amended claim 1. Whittlestone also does not disclose the pulsating pressure rate of claim 10, or the manifold of claims 1, 10, and 26.

For the foregoing reasons Applicants submit that this case is in condition for allowance, which is respectfully requested. The examiner should call applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

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